

DOCUMENT RESUME

ED 464 118

TM 033 799

AUTHOR Ku, Nai-Kuang
TITLE A Crosscultural Study on Students' Belief in Self-Efficacy for Self-Regulated Learning and Academic Achievement.
PUB DATE 2002-00-00
NOTE 34p.
PUB TYPE Reports - Research (143)
EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Academic Achievement; *Asian Americans; Attribution Theory; Beliefs; Cross Cultural Studies; *Elementary School Students; Intermediate Grades; *Self Efficacy; *Sex Differences; Student Motivation
IDENTIFIERS *Self Regulated Learning

ABSTRACT

The purpose of this study was to investigate the academic achievement discrepancy observed between Asian and non-Asian students by examining self-efficacy and several motivational factors. Original and revised versions of A. Bandura's Scale of Self-Efficacy for Self-Regulated Learning and measures of study effort, effort attribution, and academic goals were given to a sample of 87 fifth-grade students in southern California. Findings reveal that Asian students estimated their self-efficacy higher than did their non-Asian counterparts, and that female fifth graders who valued study and exerted higher effort tended to outperform male peers. (Contains 6 tables and 30 references.) (Author/SLD)

Running head: A CROSSCULTURAL STUDY ON STUDENTS' BELIEF IN SELF

A Crosscultural Study on Students' Belief in

Self-Efficacy for Self-Regulated Learning and Academic Achievement

Nai-Kuang Ku

University of Southern California

PERMISSION TO REPRODUCE AND
DISTRIBUTE THIS MATERIAL IN
WHOLE OR IN PART IS GRANTED BY
ERIC

N-K. Ku

2B

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- ☒ This document has been reproduced as received from the person or organization originating it.
- ☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TM033799

Abstract

The purpose of this study was to investigate the academic achievement discrepancy observed between Asian and Non-Asian students by examining self-efficacy and several motivational factors. Original and revised versions of Bandura's Scale of Self-efficacy for Self-regulated Learning and measures of study effort, effort attribution and academic goals were given to a sample of 87 fifth-grade students in Southern California. The research findings revealed that Asian students estimated their self-efficacy higher than did their Non-Asian counterparts, and that female fifth graders who valued study and exerted higher effort tended to outperformed male peers.

A CROSSCULTURAL STUDY ON STUDENTS' BELIEF IN SELF-EFFICACY FOR SELF-REGULATED LEARNING AND ACADEMIC ACHIEVEMENT

Understanding how students motivate themselves to learn may provide teachers with guidelines for enhancing students' cognitive skill development. To investigate the characteristics of those students who appear to be effective in mastering their own learning, the focus of this study is upon Asian and Asian-American students who are consistently more successful than their non-Asian peers in academic-related pursuits.

A number of social and psychological factors have been considered to explain observed discrepancies among academic attainments. For example, many Asian American students share in a rich heritage in which academic achievement and the pursuit of higher education are highly valued. Cross-culture studies have revealed that Asian parents tend to hold high standards for their children's academic achievement and to value effort over ability whereas American parents tend to hold lower academic standards and value ability over effort (Hawkins, 1994; Chen & Stevenson, 1995). Stevenson and Lee (1991) pointed out that generally speaking, Americans value individual accomplishments, but in Asian cultures, individuals with deep-seated "obligation" work hard in support of the group. Thus, Asians not only tend to seek to satisfy their personal goals but they also strive to meet the goals set by their families and teachers. Supporting these views, it appears that Asian-American students, on average, expend greater efforts on academic-related tasks and are more successful in attaining their educational goals compared to their peers (Zhang & Carrasquillo, 1995).

To explain what factors contribute to academic achievement, researchers have considered self-efficacy, a perception of one's ability to perform a given task, as a reliable predictor (Bandura, 1977, 1982). According to Bandura's (1977) hypothesis, self-efficacy plays a vital role for influencing an individual's choice of activities, effort applied toward activities, and persistence. Self-efficacy theory holds that people evaluate their capability to perform tasks based on their mastery, observation of other people's experiences, feedback from others, and physiological indexes. Similarly, Schunk (1989) pointed out that during academic learning, initial self-efficacy is estimated from an individual's abilities, attitudes, and prior experience. However, even if the foregoing resources are present, it is important to an individual who lacks high self-efficacy to develop the requisite skills in order to carry out competent performances (Bandura, 1986, 1997; Schunk, 1989).

With respect to their education, enhancing students' beliefs in their capabilities via the four sources of self-efficacy (competence, observation, feedback, and physiological changes) can help them gain control over their own learning associated with different academic subjects. Research based on Bandura's (1993) theory has demonstrated that students who believe that they can self-regulate or control their own learning tend to set higher academic goals and attain higher levels of performance than students who do not think they can manage their own learning (Schunk, 1991; Zimmerman, 1990).

In general, some researchers have found that when provided with such regulatory strategies as time management, goal setting, and effort dispensation, students have tended to perform better (Malpass, O'Neil, & Hocesvar, 1999; Sexton, Harris, & Graham, 1998). For example, goal setting is critical to motivation and to self-regulatory activities. Schunk (1991)

suggested that students who set goals tended to (a) make commitments to work toward desirable outcomes, (b) put their commitments into action that led to successes, and (c) strengthen their self-efficacy by learning to monitor their progress. Furthermore, setting specific, proximal, and moderately challenging goals appeared to support both self-efficacy and achievement. In turn, compared to others, students with high self-efficacy scores tended to set challenging goals, took risks, did their best, and persevered on difficult tasks (Locke & Latham, 1990; Mone, Baker, & Jeffries, 1995). It is believed that these qualities foster growth of ability and goal achievement (Tuckman & Sexton, 1992). Thus, it has been concluded that individuals have a greater chance to succeed when they set their goals slightly higher than their existing ability, a concept expressed by Vygotsky (1978) as the zone of proximal development.

In addition to the role of predicting academic outcomes, self-efficacy may mediate other motivational factors such as causal attribution and goal setting in academic attainment pursuits. In Graham's (1994) study, people classified as efficacious (high self-efficacy scores) tended to attribute their failures to the lack of efforts, skills, or resources whereas people with low self-efficacy attribute their failures to low ability. Among recent cross-culture studies, researchers have found that Asian students tended to underestimate their academic abilities compared to their Non-Asian counterparts (Eaton & Dembo, 1997; Stigler, Mao & Smith, 1985). Lower levels of self-efficacy have been correlated with lower motivational, affective, and cognitive outcomes (Bandura, 1986, 1989; Schunk, 1991). However, Eaton and Dembo (1997) indicated that Asian American high school students who had lower self-efficacy still outperformed their non-Asian peers on academic study.

The explanations for this contradictory finding, according to Eaton and Dembo, are either that cultural belief (i.e., fear of academic failure) is a better predictor for Asian American's achievement than self-efficacy or that non-Asian students tend to overestimate their capability.

A review of the literature revealed that although studies have been conducted on the relationship between self-efficacy and various motivational variables, rarely has self-efficacy research focused on contrasting Asian and non-Asian approaches to learning, particularly at the elementary school age. The three-fold purpose of this research was to compare Asian and non-Asian 5th-grade students on (1) general self-efficacy, reading efficacy, and math efficacy for self-regulating learning; (2) academic performance on reading and math; and (3) the extent to which gender, ethnicity, self-efficacy, study effort, effort attribution, and academic goals serve as predictors of reading and math performance.

Method

Participants

All students enrolled in 5th-grade classes at two participating elementary schools located in a middle- to upper-middle-class suburban city district in Southern California were invited by the researcher to participate in the study. Students who expressed interest were given two consent forms describing the study; one form was signed by the parent or guardian and the other was signed by the participant him/herself. Student participation was voluntary with prior parental approval.

There were 87 5th-grade students who agreed to participate in this study. The gender distribution of the sample consisted of 43 males and 44 females. Based on student self-

reports of ethnic affiliation, they were divided into two groups: (1) 56 Asian respondents (28 males and 28 females) and (2) 31 Non-Asian respondents (15 males and 16 females).

Instruments

Five measures were administered to the participants. The first was Bandura's original Scale of Self-efficacy for Self-regulated Learning (see Rule & Griesmer, 1996), which is one of nine subscales that makes up Bandura's Children's Self-efficacy Scale, and measures students' perceived capability in using various self-regulated learning strategies such as concentrating on school subjects, organizing schoolwork, and participating in class discussions. Students were asked to rate their self-regulated learning efficacy on 11 items using a 7-point Likert-type response scale (1 = "not very well at all" to 7 = "very well"). In a recent study conducted by Griesmer (1995), for scores obtained from a sample of 146 students, the alpha coefficient calculated was .81, indicating good internal-consistency reliability.

The second was revisions of the original Scale of Self-efficacy for Self-regulated Learning rewriting to reflect either a reading or math domain. According to previous research, responses are most interpretable when one assesses the self-efficacy mechanism within the context of specific subject-domains (Hackett & Betz, 1989; Pajares, 1996; Shell et al., 1995). As an example, Item 1 from the original scale is presented along with each of the revised statements reflecting either a reading context or a math context:

How well can you finish homework assignments by deadlines? (Original Item 1)

How well can you finish reading homework assignments by deadlines? (Revised)

How well can you finish math homework assignments by deadlines? (Revised)

Teacher ratings of student performance in reading and in math were the third measures. The school district board rejected a request to use recorded achievement scores and to administer achievement tests. Thus, teacher ratings were considered as the most convenient and reliable alternative method for accessing students' academic performance (Westbrook, Buck, and Sanford, 1990). Teachers were asked to evaluate the reading and math performance of participants based on class participation, exam scores, and projects. For reading, letter grades A through F were used (A = "excellent" [coded 5], B = "above average" [coded 4], C = "satisfactory" [coded 3], D = "below average" [coded 2], F = "unsatisfactory" [coded 1]); for math, ratings from 1 to 6 were used (1 = "poor"; 6 = "excellent").

A set of criterion measures of students' estimate of study effort, effort attribution, and goals comprised the fourth set of measures. First, the measure of academic attribution was a forced-choice item in which participants were asked to choose one of two statements that best represented them with respect to their attribution of either effort or ability ("The grades I earn in school depend on how hard I work on my studies," or "No matter how hard I work, I always get the same grades"). Second, for the measure of academic effort, participants were asked to rate themselves on a 7-point Likert Scale (1 = "not well at all," 7 = "very well") with respect to the question "How hard do you work on your school subjects?" Third, the measure of academic goal required students to choose one academic degree that they expected to earn in the future.

Finally, a four-item demographic survey was included. Participants were asked to provide responses regarding ethnicity, residence years in the United States, father's education, and mother's education.

Data Collection Procedures

After the consent forms had been obtained, procedures were employed to insure anonymity. A packet of materials was distributed to each student which contained (a) Bandura's Scale of Self-efficacy for Self-regulation Learning, (b) modified versions of on two specific subject domains (reading and math), and (c) the demographic survey along with criterion measures on study effort, effort attribution, and academic goal. The classroom teachers proctored the test administration. The 5th-grade students who did not participate in this research study were told to remain in their seats and were assigned a free-reading activity.

Statistical Procedures

Statistical procedures were performed using the Statistical Package for the Social Sciences (SPSS), Student Version 8.0 (SPSS Inc, 1998). Preliminary descriptive statistics were calculated including means and standard deviations for selected variables. Three types of analyses were performed:

1. Six sets of statistical hypotheses expressed in null form were tested. Each set was made up of the main effects for ethnicity and gender and the interaction effect on each of the following variables: (a) general self-efficacy, (b) self-efficacy for self-regulated reading activities, (c) self-efficacy for self-regulated mathematics activities, (d) reading performance, (e) mathematics performance, and (f) study effort. Thus, 6 two-way analysis of variance

(ANOVA) procedures were used to test for significant differences of those variables. The alpha criterion for each ANOVA procedure was set at .05.

2. Four chi-square analysis procedures were used to examine the associations of gender and ethnicity with measures of effort attribution and academic goal.

3. Multiple regression equations were employed to identify among the variables of gender, ethnicity, self-efficacy perception, study effort, attribution for effort, and academic goal of the criterion variables of (a) reading achievement, (b) math achievement, and (c) self-efficacy. The alpha criterion for each level of the step-by-step analysis was set at .05. However, for the examination of simple correlations, the criterion was set at .01 for a one-tailed test of significance.

Results

Demographic Information

Demographic information was obtained for a total of 87 5th-grade participants. The majority of responses for parental education levels identified the bachelor degree. Among participants' fathers, 41.4% possessed bachelor degrees, and 25.3% had graduated from master's or doctorate programs. The educational level of participants' mothers distributed similarly to that of fathers' education with 32.2% of mothers who had earned bachelor degrees and 20.7% with degrees from graduate schools. Therefore, on average, participants' parents in this study tended to have extensive higher education backgrounds. A statistically significant association was observed between parents' education level and ethnic classification.

The majority of the children who participated in this study (83.9%) were born in the United States and 10.3% had lived in the United States for more than 6 years. There was only 1 participant who had been in the United States for less than 2 years.

Ethnicity and Gender Differences

In an examination of gender differences between Asian and Non-Asian-American fifth-grade students, their responses to several measures were considered (a) general self-efficacy for self-regulating activities, (b) self-efficacy for self-regulating reading activities, (c) self-efficacy for self-regulating mathematics activities, (d) teachers' ratings of reading performance, (e) teachers' ratings of math activities, (f) study effort, (g) effort attribution and, (h) academic goals.

In Table 1, the means and standard deviations are displayed for the three self-efficacy measures (general, reading, and math), two teachers' ratings of achievement for reading and math, and the students' self-report of efforts (see Table 1). Table 2 presents the summary tables for each of the 6 two-way ANOVAs (see Table 2).

Self-efficacy measures. For Bandura's (1996) measure of self-efficacy for self-regulated learning, the Asian group exhibited a higher level of perceived self-efficacy ($M = 5.54$; $SD = .91$) than did the Non-Asian group ($M = 5.05$; $SD = .86$). Although both groups on the 7-point response scale tended to view their ability to perform tasks above the midpoint of the scale, a two-way ANOVA revealed a statistically significant main effect for ethnicity ($F [1,82] = 6.28, p < .05$). In addition, a statistically significant gender main effect was observed with males ($M = 5.12$; $SD = .89$) scoring higher than females ($M = 5.64$; $SD = .88$). In self-efficacy for reading activities, the average score for the Asian group was 5.63

($SD = .92$) and 5.12 ($SD = .79$) for the Non-Asian group. A two-way ANOVA revealed that there was a statistically significant main effect ($F [1,82] = 7.26, p < .05$) with the Asian group registering a stronger perception that they were able to manage and monitor their own progress when they worked on reading activities than did Non-Asian fifth graders. Also, a statistically significant main effect was observed for gender: the mean for females was 5.74 ($SD = .85$) and mean for males, 5.19 ($SD = .90$) ($F [1,82] = 5.35, p < .05$). Self-efficacy scores for math activities yielded a mean for the Asian group of 5.75 ($SD = .94$) and a mean of 5.04 ($SD = 1.04$) for the Non-Asian group. A statistically significant ($F [1,82] = 11.16, p < .05$) indicated that the Asian group was more likely to think that they were able to select effective learning strategies and evaluate their own progress on mathematics tasks when compared to their Non-Asian counterparts. Finally, a statistically significant gender effect was observed for males ($M = 5.21; SD = .99$) and females ($M = 5.82; SD = 1.00$) ($F [1,82] = 6.44, p < .05$). No statistical significant interaction effect is observed.

Teachers' rating of performance. For reading performance, teachers' rating ($A=5; F=0$) averaged 4.23 ($SD = .93$) for the Asian students and a mean of 3.60 ($SD = .97$) for the Non-Asian group. A two-way ANOVA revealed that a statistically significant main effect ($F [1,82] = 9.03, p < .05$) indicated that the Asian group had a better reading performance than their Non-Asian peers. A statistically significant gender main effect was observed with teachers' mean ratings for males of 3.80 ($SD = .97$) and for females, 4.23 ($SD = .96$) ($F [1,82] = 4.85, p < .05$).

For math activities, the mean for the Asian group was 3.43 ($SD = 1.17$) and a mean equal to 4.39 ($SD = .73$) was observed for the Non-Asian group. A statistically significant

main effect ($F [1,82] = 4.16, p < .05$) indicated that the Asian group had a stronger math performance than did their Non-Asian counterparts. A statistically significant gender main effect ($F [1,82] = 22.58, p < .05$) was also observed for males ($M = 3.86; SD = 1.17$) and females ($M = 4.25; SD = .78$).

Students' self-report of study efforts. Although the Asian students reported slightly greater efforts expended on study ($M = 5.87; SD = .93$), compared to the Non-Asian students ($M = 5.62; SD = .86$), the difference was not statistically significant ($F [1,82] = 1.72, p > .05$). The findings indicated that the Asian and Non-Asian group held similar perceptions regarding how much effort they put forth on study. However, a statistically significant main effect was observed for gender: the mean for females was 5.98 ($SD = .77$) and for males, 5.58 ($SD = 1.03$) ($F [1,82] = 4.04, p < .05$) revealed that female fifth graders perceived that they made more efforts on study than males. Finally, as shown in Table 2, among the six two-way ANOVAs, there was no significant ethnicity by gender interaction for any of the dependent variables examined.

Effort attribution. Students were asked to identify whether they attributed their academic outcomes to working hard by indicating their agreement with one of two statements: "The grades I earn in school depend on how hard I work on my studies" or "No matter how hard I work, I always get the same grades." As shown in Table 3, a chi-square analysis revealed that approximately 95% of the Asian students attributed their academic success to hard work whereas about 77% of the Non-Asian students attributed their success to effort. Thus, it was concluded that the Asian fifth graders in this sample were more likely to attribute success in school to hard work when compared with Non-Asian students ($\chi^2 [1;$

$N=86]=6.14, p < .05$). There was no statistically significant association found for males and females on effort attribution. Both males and females tended to attribute their academic successes to hard work (see Table 3).

Academic goals. Students were asked to identify the highest education degree they planned to obtain in the future. A total of 70 of the 84 students (83.32%) chose master's or doctorate degrees as a goal. As shown in Table 4, 41.7% of Asians ($n=20$) compared with 68.2% of non-Asians ($n=15$) chose master's degree as their highest educational goals. Moreover, 58.3% of Asians ($n=28$) compared with 31.8% of non-Asians ($n=7$) chose the doctorate degree as their highest educational goals ($\chi^2 [1; N=70]=4.24, p < .05$). The chi-square value of 4.24 was statistically significant. Generally speaking, Asian fifth graders tended to hold higher aspirations for attending universities to earn advanced degrees than did non-Asian fifth graders. Once, again, there was no statistically significant difference between males and females. It was concluded that males and females tend to hold similar aspirations for higher education grades (see Table 4).

Prediction for reading achievement

The matrix displaying the correlation coefficients supporting the regression is presented in Table 5. Out of the total sample of 86 5th-grade students, a subsample of 73 generated a complete set of data which were submitted for a stepwise multiple regression analysis in which the regression of reading achievement on the six predictor variables was examined using transformed scores. Table 6 provides a summary of the regression results. A multiple correlation coefficient (R) of .45 ($F [2,70]=8.70, p < .05$) was obtained revealing only two variables that contributed significantly to the prediction of reading

achievement: (1) attribution (Are grades related to hard work vs. not to hard work) and (2) gender. Thus, approximately 20% of the variance in reading achievement was accounted for by an optimally weighted combination of attribution and gender. This outcome suggests that nearly 80% of the variance may be due to dimensions not measured. The obtained regression equation in standard score units was as follows:

$$\text{Reading Achievement} = -.41 (\text{Attribution}) + .22 (\text{Gender}).$$

The standardized *Beta* of $-.41$ for the attribution variable was statistically significant ($t = -3.8$, $p < .001$) and carries nearly twice the weight of gender ($Beta = .22$, $t = 2.04$, $p < .05$) in predicting reading achievement which was measured by teacher ratings. It is noted that the score of attribution was coded as "1= hard work" and "2= not hard work"; thus, the standardized *Beta* for the attribution variable is a negative value.

Prediction for math achievement. For the complete data set of 73 5th-grade students, a stepwise multiple regression analysis was computed in which the regression of mathematics achievement on the six-predictor variables was examined using transformed scores. A multiple correlation coefficient (*R*) of $.54$ ($F [3,69] = 9.61$, $p < .05$) was obtained revealing three variables which contributed significantly to the prediction of math achievement: (1) attribution (Are grades related to hard work vs. not to hard work), (2) self-efficacy for self-regulated math activities, and (3) ethnicity. Approximately 30% of the variance in mathematics achievement was accounted for by an optimally weighted combination of attribution, self-efficacy for self-regulated math activities

(SE-M), and ethnicity. This outcome suggests that nearly 70% of the variance be due to dimensions that were not included in the regression. The obtained regression equation in standard score units was as follows:

$$\text{Mathematics Achievement} = -.33 (\text{Attribution}) + .24 (\text{SE-M}) + .23 (\text{Ethnicity}).$$

The standardized β etas for the three variables were statistically significant (Attribution β eta = $-.33$, $t = -3.15$, $p < .05$; SE-M β eta = $.24$, $t = 2.27$, $p < .05$; Ethnicity β eta = $.23$, $t = 2.15$, $p < .05$) in predicting mathematics achievement.

Prediction for self-efficacy. As shown in Table 5, the strongest correlation observed for self-efficacy (general) scores was with the effort criterion scores ($r = .57$) which accounted for approximately 32% of the shared variance. For the total sample of 86 5th-grade students, a stepwise multiple regression analysis was computed in which the regression of general self-efficacy on the five predictor variables was examined using transformed scores. A multiple correlation coefficient (R) of $.57$ ($F [1,71] = 33.35$, $p < .05$) was obtained revealing only one variable which contributed significantly to the predictor of general self-efficacy: effort ("How hard do you work on your school subjects"). The obtained regression equation in standard score units was as follows:

$$\text{Self-efficacy} = .57 (\text{Effort}).$$

The standardized β eta for effort variable was statistically significant (Effort: β eta = $.57$, $t = 5.78$, $p < .05$) in predicting general self-efficacy and accounting for 32% of shared variance. Thus, one may conclude, the greater the effort expended the higher one's self-efficacy.

Discussion

A review of the literature revealed that few studies examined the relationship between self-efficacy and various motivational variables contrasting Asian and non-Asian approaches to learning, particularly at the elementary school age. Among recent cross-culture studies, researchers have found that Asian students tended to underestimate their academic abilities compared to their Non-Asian counterparts (Eaton & Dembo, 1997; Stigler et al., 1985). Results of the current study indicated that Asian students not only tended to outperform their Non-Asian counterparts but also anticipated their own abilities as higher than non-Asians. Thus, the study does not support the previous research. The results of this study clearly showed that Asian students demonstrated higher academic performances and held higher levels of self-estimation of academic capabilities than Non-Asians. Also, consistent with previous findings, male 5th-grade students (regardless of ethnicity) compared to female 5th-graders had statistically significant lower levels of academic achievement and self-prediction of their capabilities. Other observed differences on motivational beliefs raised issues regarding how elementary school students perceive their capabilities and learning.

The finding that Asian students outperformed their Non-Asian counterparts and perceived their capabilities as higher than did Non-Asian students are in contrast to studies that have reported a discrepancy between the prediction and actual performance of Asian students because they underestimate their academic performance (Stigler, et al., 1985; Sue & Okazaki, 1990). In the current research effort, Asian fifth graders gave a higher estimate of their capabilities, specifically; and self-perception that they can manage their schoolwork

well was positively correlated with their academic achievement. A possible explanation might be that the Asian students in this study either were born or have lived in the United States for more than 7 years. That is, these Asian fifth graders in this study received their formal education in the United States where school dynamics and instructional objectives differ from educational systems in Asian countries. Influenced by schooling practices in the US, Asian and Asian-American students may tend to exhibit greater confidence rather than projecting the more "humble" image that is praised in the Asian culture.

The statistically significant association between ethnic classification and the role of effort in academic success observed in this study was consistent with the findings of Zhang and Carrasquillo (1995). It appeared that Asian fifth graders in the current study emphasized effort as a component of their academic success more than did the Non-Asian students. Furthermore, these students registered expectations for attaining higher academic goals than did their counterparts.

Applications of the Findings

The findings related to the correlation and regression analyses raised important questions: (a) what is the explanation for the finding that self-reported effort serves as a predictor of self-efficacy whereas attribution for effort predicts achievement ratings in reading and mathematics but does not predict self-efficacy? (b) What is the explanation for the finding that self-efficacy contributes to the prediction of mathematics performance ratings but not for reading? And, (c) is there a cultural explanation for the relationship between attribute for effort and achievement ratings?

First, it was assumed that there would be strong relationships between the self-efficacy measures and the self-report item of the effort a student spends in study. The findings supported this view with coefficients ranging from .45 to .56 between effort and the three self-efficacy measures.

Next, it was assumed that a logical relationship exists between attribution of effort (e.g., "The grades I earn in school depend on how hard I work on my studies" vs. "No matter how hard I work, I always get the same grades") and a student's self-report of his/her effort. However, the findings revealed that the correlation was near zero ($r = .01$). One possible explanation is that the effort self-rating deals with a concrete concept for the child whereas the forced-choice wording for the attribution for effort item was more abstract indicating, perhaps, that these two items were tapping different constructs. This idea is partially supported by the correlation coefficients obtained between attribution for effort and the three measures of self-efficacy. These coefficients were virtually zero (coefficients ranged from -.03 to -.07). In seeking an explanation for this observation, it was considered that attribution for effort represents an idea about effort rather than a specific or more concrete action reflected in the self-efficacy measures. So, now, one might conclude that attribution of effort might have a weak association with self-efficacy whereas self-reported effort would be strongly related to self-efficacy because both of these measures are more concretely based. Of course, if an attribution item were constructed that had a more concrete focus, a stronger correlation might be observed with self-efficacy.

Within the framework of Bandura's (1977) theory, he broadly described four sources of self-efficacy one of which included the concept of affective states. So, generally, one

might expect meaningful correlations between affective measures and self-efficacy. However, in the current study, if one can assume that the attribution for effort item could be classified as a motivational (or affective) variable (as belief statements are thought to "motivate" behavior), the lack of relationship with self-efficacy suggests a problem with the item or with the theory. It is somewhat perplexing, because the attribution item "behaved" in a predictable way with achievement ratings.

The second question involved the finding that self-efficacy contributes to the prediction of mathematics performance ratings but not to reading performance ratings. One possible explanation is that reading, even for fifth graders, may reflect more psycholinguistic processes dealing with abstractions (e.g., encoding and extrapolating from the text as well as creating meaning) whereas in mathematics for fifth-grade students, the curriculum may be more concrete (e.g., specific procedures, formulas, and common problem-solving strategies leading to "correct" answers).

The third question deals with whether there are any cultural explanations for the relationships observed between attribute for effort and achievement ratings. First, it must be pointed out that, in the current study, no statistically significant differences were found between the Asians and Non-Asians on self-reported effort. However, an examination of the means suggests a potential main-effect trend in the data with male Asians registering higher self-reported effort than male Non-Asians and female Asians scoring higher than female Non-Asians. If this trend would hold for another sample, as pointed out in the literature review, one possible explanation would be that Asian parents teach their children that effort plays a crucial role in their academic success. This training may have some

influence on the actual effort that a student spends on his/her studies and the resultant performance on school subjects.

It is interesting to note that males in both groups reported lower efforts applied to studies than did females. In fact, females outperformed males on nearly all of the variables examined in this study. Thus, one might conclude, that boys in this fifth grade sample tended not to try as hard as the girls perhaps explaining lower self-efficacy scores and lower academic performance.

The finding that Asian students outperformed their Non-Asian counterparts and perceived their capabilities as being higher than those reported by Non-Asian students tends to support the hypothesis. In other words, the finding in this study did not support a discrepancy between the prediction and actual performance for Asian students or that Asian students tended to underestimate their academic performance (Eaton & Dembo, 1997; Stigler et al., 1985). Furthermore, the accurate self-appraisal of capabilities probably contributes to better academic performance; hence, the successful academic experiences tend to enhance or maintain self-efficacy beliefs. Though current research findings tend to support the view that self-efficacy fosters academic achievement, future research should consider the validation of self-efficacy prediction. Students might be trained to become aware of their capabilities, utilize more precise judgment of abilities to modify their learning strategies, allocate learning resources, trigger self-regulatory learning, and monitor their progress. Thus, educators and teachers could assist their students to comprehend the purpose of the learning and empower them to become independent learners who can regulate their own cognitive constructions. By eliciting students' self-knowledge at an early

stage, it is hoped that, educators can inspire students to become more self-motivated, effective, and independent learners.

References

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, 37, 122-147.
- Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliff, NJ: Prentice-Hall.
- Bandura, A. (1988). Self-regulation of motivation and action through goal systems. In V. Hamilton, G. J. Bower, & N. H. Frijda (Eds.), Cognitive perspective on emotion and motivation (pp. 37-61). Dordrecht, the Netherlands: Kluwer Academic Publishers.
- Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy. Developmental Psychology, 25, 729-735.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and function. Educational Psychologist, 28, 117-148.
- Bandura, A. (1997). Self-efficacy: The exercise of control. New York: W.H. Freeman and Company.
- Eaton, M. J., & Dembo, M. H. (1997). Differences in the motivational beliefs of Asian American and non-Asian students. Journal of Educational Psychology, 89, 433-440.
- Graham, S. (1994). Classroom motivation from an attributional perspective. In H. F., O'Neil & M. Drilling (Eds.), Motivation: Theory and research. Hillsdale, NJ: Erlbaum Associations.

Griesmer, B. A. (1995). Motivation, self-efficacy for self-regulated learning, and the transition to middle school. Unpublished manuscript.

Hackett, G., & Betz, N. E. (1989). An exploration of the mathematics self-efficacy/mathematics performance correspondence. Journal of Research in Mathematics Education, 20, 261-173.

Hawkins, J. N. (1994). Issues of Motivation in Asian Education. In H. F. O'Neil & M. Drilling (Eds.), Motivation: Theory and research. Hillsdale, NJ: Erlbaum Associates.

Locke, E. A., & Latham, G. P. (1990). A theory of goal setting and task performance. Englewood Cliffs, NJ: Prentice-Hall.

Malpass, J. R., O'Neil, H. F., & Hocevar, D. (1999). Self-regulation, goal orientation, self-efficacy, worry, and high-stakes math achievement. Roeper Review, 21, 281-288.

Mone, M. A., Baker, D. D., & Jeffries, F. (1995). Predictive validity and time dependency of self-efficacy, self-esteem, personal goals, and academic performance. Educational and Psychological Measurement, 55, 716-27.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. Review of Educational Research, 66, 543-578.

Rule, D. L., & Griesmer, B.A. (1996). Relationship between Harter's scale of intrinsic vs. extrinsic orientation and Bandura's scale of self-efficacy for self-regulated learning. (ERIC Document Reproduction Service No. ED 433 659).

Schunk, D. H. (1989). Self-efficacy and achievement behaviors. Educational Psychology Review, 1, 173-208.

Schunk, D. H. (1991). Self-efficacy and academic motivation. Educational Psychologist, 26(3&4), 207-231.

Sexton, M., & Harris, K. R., & Grahan, S. (1998). Self-Regulated Strategy Development and the writing process: Effects on essay writing and attributions. Exceptional Children. 64, 295-311

Shell, D. F., Colvin, C., & Bruning, R. H. (1995). Self-efficacy, attribution, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. Journal of Educational Psychology, 87, No. 3, 386-398.

SPSS Inc. (1998). Statistical package for the social sciences (SPSS), student version 8.0. Chicago, IL: Autitor.

Stevenson, H. W., & Lee, S. Y. (1990). Contexts of achievement: A study of American, Chinese, and Japanese children. Monograph of the society for research in child development, 55, 70-81.

Stigler, J. W., Smith, S., & Mao, L. W. (1985). The self-perception of competence by Chinese children. Child Development, 56, 1259-1270.

Sue, S., & Okazaki, S. (1990). Asian-American Educational Achievement: A phenomenon in search of an explanation. American Psychologist, 45, 913-920.

Tuckman, B. W., & Sexton, T. L. (1992). The effect of teacher encouragement on student self-efficacy and motivation for self-regulated performance. Journal of social behavior and personality, 6, 137-146.

Vygotsky, L. S. (1978). Interaction between learning and development. In M. Cole, S. Scribner, V. John-Steiner, & E. Sonberman (Eds.), Mind in society: Development of higher psychological processes. Cambridge, MA: Harvard University Press.

Westbrook, B.W., Buck, R.W., Jr., & Sanford, E.E. (1990). Reliability and validity of an instrument to measure the self-appraisal component of career maturity. Paper presented at the American Association of Counseling and Development, Cincinnati, Ohio, March 1990.

Zhang, S. Y., & Carrasquillo, A. L. (1995). Chinese parents' influence on academic performance. New York Association for Bilingual Education Journal, 10, 46-53.

Zimmerman, B. J. (1990). Self-regulating academic learning and achievement: The emergence of a social cognitive perspective. Educational Psychology Review, 2, 173-201.

Table 1

Means and Standard Deviations for Each of Three Self-efficacy Measures, Teachers' Rating of Achievement, and Students' Self-Report of Efforts for Male and Female Asian and Non-Asian Fifth Graders. (Corresponding F Statistics are Provided for Ethnicity and Gender Comparisons.)

Variables			Asian (<u>n</u> = 56)	Non-Asian (<u>n</u> = 30)	<u>F</u>	
<u>Self-Efficacy</u> (General)	<u>Male</u> (<u>n</u> =43)	Mean	5.25	4.88	5.12	6.28*(F _{ETH})
		SD	.94	.76	.89	5.75*(F _{GEN})
	<u>Female</u> (<u>n</u> =44)	Mean	5.83	5.23	5.64	
		SD	.79	.92	.88	
		Mean	5.54	5.05		
		SD	.91	.85		
<u>Self-Efficacy</u> (Reading)	<u>Male</u> (<u>n</u> =43)	Mean	5.27	5.05	5.19	7.26*(F _{ETH})
		SD	1.01	.64	.90	5.35*(F _{GEN})
	<u>Female</u> (<u>n</u> =44)	Mean	5.99	5.20	5.74	
		SD	.66	.93	.85	
		Mean	5.63	5.12		
		SD	.92	.79		
<u>Self-Efficacy</u> (Math)	<u>Male</u> (<u>n</u> =43)	Mean	5.41	4.84	5.21	11.16*(F _{ETH})
		SD	.90	1.05	.99	6.44*(F _{GEN})
	<u>Female</u> (<u>n</u> =44)	Mean	6.09	5.24	5.82	
		SD	.86	1.03	1.00	
		Mean	5.75	5.04		
		SD	.94	1.04		

<u>Achievement</u> (Reading)	<u>Male</u> (<u>n</u> =43)	Mean	4.04	3.33	3.80	9.03*(FETH)
		SD	.92	.90	.97	4.85*(FGEN)
	<u>Female</u> (<u>n</u> =44)	Mean	4.42	3.87	4.23	
		SD	.92	.99	.96	
		Mean	4.23	3.60		
		SD	.93	.97		
<u>Achievement</u> (Math)	<u>Male</u> (<u>n</u> =43)	Mean	4.21	3.20	3.86	4.16*(FETH)
		SD	.83	1.42	1.17	22.58*(FGEN)
	<u>Female</u> (<u>n</u> =44)	Mean	4.57	3.67	4.25	
		SD	.57	.82	.78	
		Mean	3.43	4.39		
		SD	1.17	.73		
<u>Effort</u>	<u>Male</u> (<u>n</u> =43)	Mean	5.68	5.25	5.58	1.72 (FETH)
		SD	1.07	.89	1.03	4.04*(FGEN)
	<u>Female</u> (<u>n</u> =44)	Mean	6.03	5.85	5.98	
		SD	.76	.80	.77	
		Mean	5.87	5.62		
		SD	.93	.86		

* $p < .05$

Table 2

ANOVA Summary Table for Six Sets of
Scores for a Sample of 87 Fifth Graders

Source		<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Self-Efficacy	Ethnicity	1	4.64	4.64	6.28*
	Gender	1	4.25	4.25	5.75*
	Interaction	1	.29	.29	.39
	Total	85	70.93	.83	
Self-Efficacy (Reading)	Ethnicity	1	5.07	5.07	7.26*
	Gender	1	3.73	3.73	5.35*
	Interaction	1	1.59	1.59	2.28
	Total	85	69.76	.82	
Self-Efficacy (Mathematics)	Ethnicity	1	9.86	9.86	11.16*
	Gender	1	5.69	5.69	6.44*
	Interaction	1	.35	.35	.39
	Total	85	89.84	1.06	
Achievement (Reading)	Ethnicity	1	7.81	7.81	9.03*
	Gender	1	4.19	4.19	4.85*
	Interaction	1	.10	.10	.11
	Total	85	82.99	.98	
Achievement (Mathematics)	Ethnicity	1	3.31	3.31	4.16*
	Gender	1	17.99	17.99	22.58*
	Interaction	1	.06	.06	.07
	Total	85	86.71	1.02	
Efforts	Ethnicity	1	1.38	1.38	1.72
	Gender	1	3.26	3.26	4.04*
	Interaction	1	.21	.21	.25
	Total	72	59.92	.83	

* $p < .05$

Table 3

Contingency Table Made up of Frequencies and Row Percentages for a Sample of
Asian and Non-Asian Fifth Graders on the Attribution Criterion Variable:
"Are Grades Related to Hard Work or Not to Hard Work?"

	Yes	No	Row Total
Asian	53 94.5%	3 5.4%	56 65.1%
Non-Asian	23 76.7%	7 23.3%	30 34.9%
Column Total	76 88.4%	10 11.6%	86 100%

$$\chi^2 (1; N=86) = 6.14, p < .05$$

Table 4

Contingency Table Made up of Frequencies and Row Percentages for
a Sample of Asian and Non-Asian Fifth Graders on Choosing
Master's or Doctorate Degrees as Their Academic Goal

	Master	Doctorate	Row Total
Asian	20 41.7%	28 58.3%	48 68.6%
Non-Asian	15 68.2%	7 31.8%	22 31.4%
Column Total	35 50.8%	35 50.0%	70 100.0%

$\chi^2 (1; N=70) = 4.24, p < .05$

Table 5

Correlation Matrix Among Criterion and Predictor Variables (n= 73)

Variables	<u>Criterion</u> Achievement Ratings		<u>Self-efficacy</u>			<u>Predictors</u>				
	Rdg	M	General	Rdg	M	Gen	Eth	Eff	Att	Goal
<u>Criterion</u>										
Rdg	--									
M	.58***	--								
<u>Self-efficacy</u>										
General	.20*	.25*	--							
Rdg	.22*	.28**	.81***	--						
M	.21*	.31**	.79***	.70***	--					
<u>Predictors</u>										
Gen	.19	.12	.19	.26*	.24*	--				
Eth	.23*	.38***	.23*	.24*	.28**	-.09	--			
Eff	.11	.71	.57***	.45***	.47***	.22*	.12	--		
Att	-.39***	-.40***	-.07	-.04	-.03	.07	-.25*	.01	--	
Goal	.20*	.16	.13	.07	.29*	.02	.21*	.25*	-.14	--

* $p < .05$; ** $p < .01$; *** $p < .001$

Legend:

Rdg=Reading

M=Math

Gen=Gender

Eth=Ethnicity

Eff=Effort

Att=Attribution

Table 6

Stepwise Multiple Regression Analysis for the Relationship Among Gender, Ethnicity, Self-efficacy, Attribution, Efforts, and Goals (n= 73)

Criterion	Step	Variable	<u>R</u>	<u>R</u> ²	IncR ²	<u>F</u>	<u>p</u>	Beta
Achievement (Reading)	1	Attribution	.39	.15	.14	12.67	.00	-.39
	2	Attribution Gender	.45	.20	.18	8.70	.00	-.41 .22
Achievement (Mathematics)	1	Attribution	.40	.16	.14	13.14	.00	-.40
	2	Attribution Self-efficacy (Mathematics)	.50	.25	.23	11.50	.00	-.39 .30
	3	Attribution Self-efficacy (Mathematics) Ethnicity	.54	.30	.26	9.61	.00	-.33 .24 .23
Self-efficacy	1	Efforts	.57	.32	.31	33.35	.00	.57



U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

ERIC

REPRODUCTION RELEASE

(Specific Document)

TM033799

I. DOCUMENT IDENTIFICATION:

Title: <i>A CROSSCULTURAL STUDY ON STUDENTS' BELIEF IN SELF-EFFICACY FOR SELF-REGULATED LEARNING AND ACADEMIC ACHIEVEMENT</i>	
Author(s): <i>NAI-KUANG KU</i>	
Corporate Source:	Publication Date:

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY _____ Sample _____ TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1



Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) and paper copy.

The sample sticker shown below will be affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY _____ Sample _____ TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
--

2A

Level 2A



Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY _____ Sample _____ TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
--

2B

Level 2B



Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.			
Signature: <i>Nai-Kuang Ku</i>	Printed Name/Position/Title: <i>NAI-KUANG KU</i>		
Organization/Address: <i>University of Southern California</i>	Telephone: <i>562-7547-4236</i>	FAX: <i>562-7864-6806</i>	Date: <i>3/29/02</i>
	E-mail Address: <i>nrk@usc.edu</i>		

Sign
here, →
please

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

**ERIC CLEARINGHOUSE ON ASSESSMENT AND EVALUATION
UNIVERSITY OF MARYLAND
1129 SHRIVER LAB
COLLEGE PARK, MD 20742-5701
ATTN: ACQUISITIONS**

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to: